

STUDIES OF INDIVIDUALISM-COLLECTIVISM: EFFECTS ON COOPERATION IN GROUPS

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Data from 492 college students indicated that group size and individuals' identifiability, sense of shared responsibility, and levels of individualism or collectivism influenced peer-rated cooperation in classroom groups. Levels of individualism or collectivism moderated the effects of size and identifiability on cooperation but not those of shared responsibility. These findings suggest that models of free riding and social loafing provide insights into individualistic cooperation in groups but are limited in their ability to explain the cooperation of collectivists.

Cooperation, defined as the willful contribution of personal effort to the completion of interdependent jobs, is essential whenever people must coordinate activities among differentiated tasks. Barnard (1938), who was one of the first modern organization theorists to recognize this requirement, deemed it crucial to the survival of a social unit that its members induce each other to behave cooperatively. Other theorists influenced by Barnard (e.g., March & Simon, 1958; Simon, 1947; Thompson, 1967) later incorporated similar ideas into many of today's archetypal models of organization and organizational behavior. As a result, cooperation is now a fundamental concept in the organization sciences, as evidenced by the articles appearing in this special issue of the *Academy of Management Journal*.

Despite the conceptual importance of cooperation, one must look outside the organization sciences to find long streams of theory and research concerning cooperation in the kinds of groups found in current-day organizations. In one such stream, researchers in economics and social psychology have investigated the behavioral patterns termed free riding and social loafing (Latané, Williams, & Harkins, 1979; Sweeney, 1973). Studies in this domain have sought to identify factors that might curb noncooperative tendencies and instead encourage cooperation in groups (Kerr & Bruun, 1983; Marwell & Ames, 1979). Over a hundred published analyses have resulted.

In another area of investigation, a number of social scientists have commented on the individualistic leanings of many current-day theories of social cooperation and human behavior (e.g., Hogan, 1975; Spence, 1985). Some have speculated that the presence of collectivity-oriented proclivi-

Blair Svendsen assisted in collecting and coding the data used in this study.

ties—collectivism—might stimulate cooperation in ways not envisioned in most research (Sampson, 1977, 1978). Others have suggested that models based on individualistic assumptions might prove unable to explain the personal or social behaviors of people holding collectivist viewpoints (Lykes, 1985; Shamir, 1990).

During the most recent decade, a few organization scientists have noted the relevance of these bodies of research to researchers interested in understanding the behaviors of individuals and groups in organizations (e.g., Albanese & Van Fleet, 1985; Jones, 1984; Wagner & Moch, 1986). In addition, several organizational researchers have borrowed from one or both streams to pursue various questions (e.g., Earley, 1989, 1993; Weldon & Gargano, 1985). However, investigation into cooperation in groups, particularly where that cooperation is influenced by variations in group members' levels of individualism or collectivism, has yet to develop into a significant domain of organizational research. The present article is intended to help stimulate interest in such development.

INDIVIDUALISM-COLLECTIVISM AND COOPERATION

Individualism-collectivism is an analytical dimension that captures the relative importance people accord to personal interests and to shared pursuits. As defined by Wagner and Moch (1986), individualism is the condition in which personal interests are accorded greater importance than are the needs of groups. Individualists look after themselves and tend to ignore group interests if they conflict with personal desires. The opposite of individualism, collectivism, occurs when the demands and interests of groups take precedence over the desires and needs of individuals. Collectivists look out for the well-being of the groups to which they belong, even if such actions sometimes require that personal interests be disregarded.

In the social sciences, evidence of the distinction between individualism and collectivism can be detected as far back as Aristotle's critique of the collectivist vision of Plato's *Republic*, in his own individualist-leaning *Politics* (King-Farlow, 1964). Pathbreaking discussions of concepts similar to individualism and collectivism can also be found in the European sociology of the late 1800s, wherein Toennies differentiated the *gesellschaft* society of temporary relationships from the *gemeinschaft* community of shared obligations and irreducible ties (Cahnman, 1973). Similarly, Weber (1947) differentiated the emergent, associative relationships that flourish in societies from the traditional, communal relationships that thrive in communities. At about the same time, Durkheim (1933) distinguished between organic solidarity, growing out of the necessity for dissimilar specialists to form temporary relationships to perform work requiring broad-ranging skills, and mechanical solidarity, originating in the physical similarities and affective bonds shared by the members of kinship groups or communities. Weber (1958) also described how Protestantism had given rise throughout western Europe to increasing self-reliance and a growing focus on the pursuit of personal interests.

Growing out of these and other classic origins, the distinction between self-orientation and collectivity-orientation was introduced to North American social scientists by Parsons, who described the former as existing when individuals are able to pursue private interests irrespective of their bearing on the interests of others, and the latter as occurring when obligations toward collective well-being are allowed to supersede the pursuit of personal gains (Parsons & Shils, 1951). European authors also updated the distinction between individualism and collectivism and reintroduced it in the contemporary social sciences to explain behavioral differences among societal cultures (Hofstede, 1980) as well as among individuals within a single societal culture (Silverman, 1971). In the United States, a large body of cross-cultural research developed as researchers compared people from predominately individualistic cultures, such as Australia, Canada, and the United States, and predominately collectivist cultures (Japan, Hong Kong, Korea, India, China, and Nigeria) in terms of motivation (Howard, Shudo, & Umeshima, 1983; Hui & Villareal, 1989), preferences for equity versus equality (e.g., Bond, Leung, & Wan, 1982; Hui, Triandis, & Yee, 1991), proclivities toward social interaction (e.g., Gudykunst, Yoon, & Nishida, 1987; Verma, 1985), and similar considerations. A small body of research also developed in which U.S. researchers examined the origins of individualistic-collectivistic differences within a single culture and investigated the effects of these differences on various personal and social outcomes (e.g., Breer & Locke, 1965; Cox, Lobel, & McLeod, 1991; Lykes, 1985; Wagner & Moch, 1986).

Although collectivism as defined in this research might seem similar to cohesiveness, commitment, or conformity, the latter concepts rest on the assumption that person-group relationships are temporary and based on momentary agreement or passing attraction. In contrast, collectivism is an orientation toward person-group relationships in which such relationships are looked at as being far more permanent and central. A heuristic I suggested in earlier research (Wagner, 1982) is useful in appreciating the depth of this distinction: an individualist acts as though he or she defines self as an entity consisting of a single person, bounded by his or her skin, but a collectivist acts as if he or she defines self as an entity extending beyond the individual to include a particular group of others, bounded by the social perimeter of that group. Thus, selfishness for an individualist implies attention to personal pursuits and inattention to group interests, but selfishness defined in the manner of a collectivist connotes attention to group interests and inattention to personal desires.

Thinking about the implications of these differences in self-definition suggests that variations in individualism-collectivism should influence personal tendencies to cooperate in group situations. For individualists, whose self-definitions arouse interest in the pursuit of personal gains, cooperation should prove attractive only if working with others leads to the attainment of personal benefits that cannot be obtained by working alone. In all other instances, cooperative contributions to group performance and well-being have the effect of diminishing personal resources that can be directed toward

more personally satisfying pursuits. Under these circumstances, individualists are likely to prefer to avoid cooperation and instead devote their attention to the pursuit of personal gains. In contrast, cooperation is consistent with the self-definitions of collectivists who favor the pursuit of group interests. In attending to group performance and well-being, collectivists are likely to seek out and contribute to cooperative endeavors that benefit their groups, irrespective of the immediate personal implications of these endeavors (Spence, 1985; Wagner, 1982).

Evidence supporting this line of reasoning can be found in four cross-cultural analyses, two by Gabrenya, Latané, and Wang (1981, 1983), and two by Earley (1989, 1993). Both studies by Gabrenya and colleagues compared the performance of U.S. and Chinese students, and both studies also compared the performance of Chinese students working alone and in groups. In the first study, Gabrenya and colleagues (1981) found that transfer students in the United States who came from China, a collectivist nation, produced more working together than working alone. In their second study, however, the researchers discovered that students from China who were tested in their homeland produced more working alone than working together (Gabrenya et al., 1983). In contrast to these mixed findings, both of Earley's studies showed no significant reduction of productivity in groups of Chinese collectivists, and a noticeable amount of reduction in groups of people from the United States, an individualistic nation. Earley attributed these findings to the positive effects of cultural collectivism on cooperation in groups.

Overall, the strongest evidence indicates that members of collectivist national cultures frequently opt to cooperate in groups, especially when cultural traditionalism is favored over modernity (Hsu, 1970; Yang, 1981) and when they are working in in-groups of close associates (Earley, 1993), but that members of individualistic national cultures show a marked tendency to avoid cooperation (Gabrenya et al., 1981, 1983). To the extent that a similar distinction exists among individuals in a single society, the findings of cross-cultural research suggest that

Hypothesis 1: Individualism-collectivism will influence cooperation in groups in such a way that collectivists will cooperate more than will individualists.

FREE RIDING, SOCIAL LOAFING, AND COOPERATION

Free riding is a choice individuals sometimes make to avoid cooperating in the pursuit of rewards to be shared by the members of a group, organization, or society, while expecting to derive personal benefit from those rewards, acquired through others' efforts. To the extent that free riding actually leads to reductions of individual effort, joint performance may be depressed and shared rewards may not be acquired. Social loafing is the tendency to exert less effort when working with others than when working alone (e.g., Latané et al., 1979). Social loafing differs conceptually from free

riding in that the latter grows out of rational calculation but social loafing can occur without conscious awareness. As indicated below, however, research has suggested that the primary origins of social loafing are motivational. Therefore, free riding and social loafing are analogous in source and effect: both grow out of the same choice to withhold cooperative effort from group endeavors, and both have the same potential to jeopardize group performance and well-being (Kidwell & Bennett, 1993).

Free Riding: Effects of Group Size

Analyses of free riding can be traced to Samuelson (1954), who first identified various problems inherent in providing societies with collective consumption goods, now called public goods. Such goods can be consumed by all societal members if they are available and denied to none because of their intrinsic indivisibility. Public goods include clean air and water, a common language, and a shared government. They also include the reward structure and stable employment shared by the members of an organization, the friendships and interdependence shared by the members of a group, the sense of security and common identity shared by the members of a family, and so forth.

As Olson (1965) noted, a chief implication of Samuelson's work is that public goods invite free riding, since their indivisibility makes it possible for free riders to derive benefit without personal cost. Yet this property threatens the provision of public goods, because people who might otherwise devote effort to their acquisition are likely to choose instead to free ride. For some individuals, this choice is a matter of rational maximization, since being able to consume public goods without contributing personal resources enables them to direct untapped resources elsewhere and gain even more for themselves. For other individuals, the choice to free ride grows out of a phenomenon that Kerr (1983) labeled the "sucker effect": if surrounded by others likely to free ride, an individual not otherwise inclined may also choose to free ride in order to avoid the inequity of contributing more than the others for the same share of public goods. For both of these reasons, without corrective inducements public goods are unlikely to be obtained and everyone must do without (e.g., Olson, 1965).

Olson's observation stimulated research aimed at learning how social units might best stimulate cooperation, thereby controlling free riding and insuring the continued availability of public goods. Much of this research has focused on the effects of group size on free riding, because the presence of large numbers of co-actors can shield an individual's free riding and eliminate fears of corrective retributions but few co-actors make behaviors evident and more easily punished. Some studies (Alfano & Marwell, 1980; Chamberlin, 1978; Isaac & Walker, 1988; Marwell & Ames, 1980; Sweeney, 1974) have shown size to exert direct or mediated effects on free riding in the manner Olson proposed. However, other studies have failed to reveal evidence of a meaningful association between size and free riding (Marwell &

Ames, 1979; Tillock & Morrison, 1979), and questions have been raised about the conceptual framework underlying Olson's original prediction (Chamberlin, 1974; Smith, 1975; Sweeney, 1973). Despite these reservations, research on free riding is normally interpreted as showing that group size plays at least a modest role in shaping an individual's choice to engage in cooperative behaviors (e.g., Albanese & Van Fleet, 1985; Jones, 1984). Thus,

Hypothesis 2: Group size will influence cooperation in groups in such a way that the members of small groups will cooperate more than will the members of large groups.

Social Loafing: Effects of Identifiability and Shared Responsibility

Research on social loafing originated with an experiment by Ringelmann (1913) in which individuals were compared with groups on a rope-pulling task (Kravitz & Martin, 1986). The Ringelmann experiment later stimulated a study by Ingham, Levinger, Graves, and Peckham (1974) that prompted additional interests among social psychologists. In the resulting analyses (e.g., Harkins, Latané, & Williams, 1980; Kerr & Bruun, 1981; Latané et al., 1979) researchers found that increasing the number of workers performing a task reduced the average individual effort devoted to task performance. The label "social loafing" was applied to this effect.

Because Ingham and colleagues (1974) ruled out coordination difficulties as a primary source of social loafing, later research has focused instead on motivational origins. Some of this research has suggested that tendencies toward social loafing are influenced by identifiability (also called observability, anonymity, accountability, and task visibility), which involves the degree to which others can observe and assess an individual's behaviors (George, 1992; Harkins & Szymanski, 1988; Szymanski & Harkins, 1987). Researchers have considered a variety of masking agents, including group size, as discussed above, personal deceit, and the absence of a reliable performance assessment mechanism. Like those investigating free riding, they have found that the ability to mask personal behavior encourages social loafing (George, 1992; Harkins & Petty, 1982; Weldon & Gargano, 1988). Thus,

Hypothesis 3: Identifiability will influence cooperation in groups in such a way that members perceiving themselves as having a high level of identifiability will cooperate more than those perceiving a low level of identifiability.

Research has also suggested that shared responsibility (also called felt dispensability) has effects on social loafing. Shared responsibility is a variable that reflects the changes in feelings of personal responsibility that individuals in a group sometimes experience as a result of the presence of other members (Darley & Latané, 1968; Kerr & Bruun, 1983; Sweeney, 1973). In such situations, individuals may expect that others will accept most or all

of the responsibility for group performance. Members with feelings of reduced personal responsibility thus feel personally dispensable, believing that the group can succeed at its work without their personal input (Weldon & Mustari, 1988). In contrast, members retaining a sense of personal responsibility feel that their behaviors can make the difference between success and failure for their group. In this manner, strong feelings of shared responsibility reduce personal proclivities to engage in cooperation, and weak feelings of shared responsibility may encourage such proclivities (Fleishman, 1980; Weldon & Gargano, 1985; Weldon & Mustari, 1988). Thus,

Hypothesis 4: Shared responsibility will influence cooperation in groups in such a way that members perceiving themselves to have a low level of shared responsibility will cooperate more than members perceiving a high level of shared responsibility.

A MODEL OF COOPERATION IN GROUPS

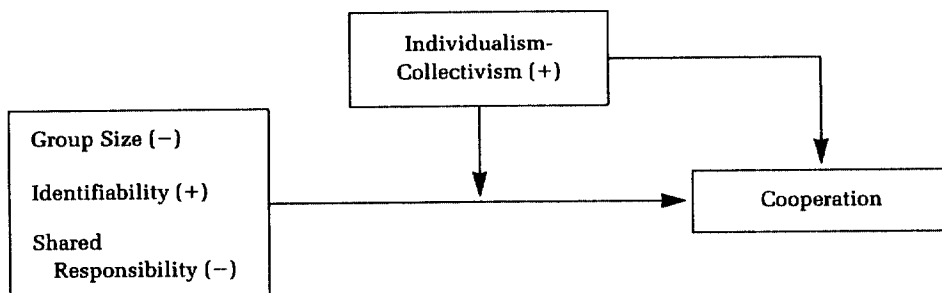
To recapitulate, research suggests that differences among people in level of individualism or collectivism are likely to affect their cooperation in groups, with greater collectivism stimulating greater cooperation. Studies of free riding and social loafing further suggest a model in which small group size, high identifiability, and low shared responsibility encourage cooperation.

Speculation also suggests that differences described by the individualism-collectivism dimension will moderate the degree to which group size, identifiability, and shared responsibility influence cooperation because those variables are all expected to affect cooperation by curtailing people's proclivities to pursue personal interests, a behavioral tendency likely to be exhibited by individualists but not by collectivists. Collectivists are likely to cooperate for reasons of collectivism—the definition of self they adopt and the priority they give to group well-being—irrespective of the effects of group size, identifiability, or shared responsibility. Consistent with this observation, I suggest

Hypothesis 5: Individualism-collectivism will exert moderating effects in such a way that group size, identifiability, and shared responsibility will have greater influence on the cooperation of individualists than on the cooperation of collectivists.

The purpose of this study was to assess the model, diagrammed in Figure 1, that is formed by the five hypotheses presented thus far. A secondary issue grew out of the recent proliferation of questionnaire measures of individualism-collectivism, three of which are currently used by organizational researchers. One of these, by Wagner and Moch (1986), is a three-dimensional instrument derived from an earlier measure by Breer and Locke (1965) that includes three items measuring individualist-collectivist beliefs,

FIGURE 1
Model of Hypothesized Relationships^a



^a The signs in parentheses indicate the expected direction of zero-order relationships between independent variables and cooperation.

three assessing individualist-collectivist values, and four tapping individualist-collectivist norms. The second measure, by Erez and Earley (1987), is based on the work of Hofstede (1980) and is a single scale made up of four items measuring individualist-collectivist cultural values. The third measure, by Triandis and colleagues (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988), includes a first dimension of 12 items assessing self-reliance and competitiveness, a second dimension of 10 items from Hui (1988) that tap concern for others in an in-group (e.g., friends, family, community), and a third dimension of 7 items assessing differentiation between individuals and their in-groups.

No single study has compared the three measures. Therefore, it is unclear whether they overlap enough to be considered synonymous, or if instead they access distinctly different aspects of individualism-collectivism and should be interpreted independently. If the measures are independent, it is not readily apparent which of them taps the aspects of individualism-collectivism having the kinds of effects hypothesized here. To deal with measurement issues of this sort, I conducted a factor analysis of the three measures and derived a multidimensional measure that was then used to conduct hypothesis tests.

METHODS

Data for this study were collected from undergraduate students enrolled in an introductory management course at a large midwestern university. All 541 students in the course were contacted at the beginning of a ten-week term and asked to provide data in return for course credit (the alternative of writing a two-page paper for equal credit was also offered), and 492 students (90.9%) chose to participate. Their average age was 21.3 years (s.d. = 2.3); 303 were men and 189 were women; 429 were white, 39 were black, and 24 identified themselves as belonging to other categories; 394 were college jun-

iors, 92 were college seniors, and 6 did not classify themselves; and their average self-reported grade point average was 2.9 (4.0 was the highest level; $s.d. = 0.4$).

Task and Measures

All participants signed waivers permitting access to all performance measures and grades recorded during the term. Participants also completed an initial questionnaire consisting of individualism-collectivism items and demographic questions. Fulfilling a normal part of the management course, students then formed case analysis groups and prepared an oral case report for presentation during the term.

Preparing for the presentation typically took 18–20 hours of students' working together closely as a group outside of class to interpret the case, apply course material, formulate a problem statement, and devise a suitable solution. Substantial interaction among group members was required to complete the preparation, and students developed strong expectations among themselves that all group members would participate in this process. Presenting the case report required further interaction, although of limited duration and intensity.

Immediately following presentation of their group's report, each group of students completed peer assessments that were an established part of the grade structure of the course. Near the end of the term, participants completed a second questionnaire that contained individualism-collectivism items plus questions about identifiability, shared responsibility, and various group attributes. From these sources, the following data were obtained.

Cooperation. Cooperation was measured by a peer assessment instrument consisting of a single page beginning with this paragraph:

You have 100 points to allocate among the members of your group according to their performance as group members during the preparation and presentation of your group's case analysis. Please allocate points in a manner reflecting the degree of cooperative effort exerted by each individual during the entire period of time your group worked on its presentation.

Following this introduction were blank lines that permitted students to list the members of their group, including themselves, and to allocate points among listed members.

Within groups, agreement about each individual's rating was quite high, as indicated by a reliability estimate of .91 (James, Demaree, & Wolf, 1984; Nunnally, 1978). I standardized this measure using z -transformation to compensate for the effects of different groups sizes (before standardization, a score of 50 indicated average performance by a member of a two-person group, a score of 33 indicated average performance by a member of a three-person group, and so forth). For the resulting standardized scores, larger values indicated higher levels of cooperation.

Group size. Group size was measured by self-reports in the questionnaire, all of which were verified by comparisons with course records.

Groups ranged from two to eight members, and sizes were coded without further transformation.

Identifiability. Three items in the second questionnaire measured self-reported identifiability: "My behaviors as a group member were readily observable to others in the group," "Others in the group could not tell whether I was doing what I was supposed to do," and "In the group, each member could tell whether other members were doing their fair share." Participants recorded their responses on seven-point Likert scales ranging from 1, "strongly disagree," to 7, "strongly agree." The second item was reverse-coded during scaling so that high ratings indicated high identifiability.

Shared responsibility. Three items in the second questionnaire measured perceptions of shared responsibility: "The members of the group shared the responsibility for getting things done," "I felt personally responsible for the productivity of the group," and "Members of the group sometimes didn't feel individually responsible for the performance of the group as a whole." Participants recorded their responses on the same Likert scale used for identifiability, and the second item was reverse-coded so that high ratings indicated high shared responsibility.

Individualism-collectivism. Measures of personal differences in individualism-collectivism were constructed from 43 items that appeared in both questionnaires. Of these items, 10 were from Wagner and Moch (1986), 4 were from Erez and Earley (1987), and 29 were from Triandis and colleagues (Triandis et al., 1988; Hui, 1988). Participants recorded responses to all items on the same seven-point Likert scale described above. Item responses were reversed as needed so that high ratings indicated stronger collectivism.

Factor analysis of data from the first questionnaire revealed an 11-factor solution that was reduced to 5 factors on the basis of a scree test of factor eigenvalues. Varimax rotation produced the factor weights shown in Table 1. As the table shows, factor 1 consisted of one item from Erez and Earley and four items from Triandis and colleagues that assessed personal independence and self-reliance; factor 2 incorporated five items from Triandis and colleagues that addressed the importance accorded to competitive success; factor 3 included two items from Wagner and Moch and one item from Erez and Earley that concerned the value attached to working alone; factor 4 was made up of the four items from Wagner and Moch that measured espousal of norms about the subordination of personal needs to group interests; and factor 5 consisted of the three items from Wagner and Moch that assessed beliefs about the effects of personal pursuits on group productivity.

Factor analysis of data from the second questionnaire replicated the same five-factor solution. The five individualism-collectivism measures used in this study were constructed from the results of this second factor analysis: items loading on a given factor were averaged, and this average then served as the score for the scale tapping that factor.

Control variables. Four demographic factors—age, gender (man or woman), race (collapsed into the dichotomy of white and all others), and

TABLE 1
Factor Analysis of Individualism-Collectivism Items

Items ^a	Collectivism Factors				
	1	2	3	4	5
1. Only those who depend on themselves get ahead in life ^b	.792				
2. To be superior a person must stand alone ^c	.458				
3. If you want something done right, you've got to do it yourself ^c	.619				
4. What happens to me is my own doing ^c	.407				
5. In the long run the only person you can count on is yourself ^c	.690				
6. Winning is everything ^c		.738			
7. I feel that winning is important in both work and games ^c		.738			
8. Success is the most important thing in life ^c		.695			
9. It annoys me when other people perform better than I do ^c		.503			
10. Doing your best isn't enough; it is important to win ^c		.681			
11. I prefer to work with others in a group rather than working alone ^d			.799		
12. Given the choice, I would rather do a job where I can work alone rather than doing a job where I have to work with others in a group ^d			.805		
13. Working with a group is better than working alone ^b			.804		
14. People should be made aware that if they are going to be part of a group then they are sometimes going to have to do things they don't want to do ^e				.684	
15. People who belong to a group should realize that they're not always going to get what they personally want ^e				.652	
16. People in a group should realize that they sometimes are going to have to make sacrifices for the sake of the group as a whole ^e				.752	
17. People in a group should be willing to make sacrifices for the sake of the group's well-being ^e				.704	
18. A group is more productive when its members do what they want to do rather than what the group wants them to do ^f					.736
19. A group is most efficient when its members do what they think is best rather than doing what the group wants them to do ^f					.750
20. A group is more productive when its members follow their own interests and concerns ^f					.756
Factor eigenvalue	5.35	2.63	2.53	1.83	1.62

^a Items 1–10, 12, and 18–20 were reverse-coded to preserve consistent directionality, with high values indicating high collectivism.

^b Item from a scale developed by Erez and Earley (1987).

^c Item from factor 1 of an instrument developed by Triandis and colleagues (1988).

^d Item from the values scale developed by Wagner and Moch (1986).

^e Item from the norms scale developed by Wagner and Moch (1986).

^f Item from the beliefs scale developed by Wagner and Moch (1986).

year in school (junior or senior)—were included as control variables to suppress the effects of prospective rater biases on peer-rated cooperation. Also included was the grade point average earned in prior classes, to control for gross differences in ability. Table 2 reports means, standard deviations, reliability coefficients, and correlations pertaining to all the measures used in this study.

Design and Analysis

I performed moderated regression procedures (Stone & Hollenbeck, 1984, 1989) to control for the effects of exogenous demographic differences arising while assessing the main and moderator effects on cooperation of group size, identifiability, shared responsibility, and individualism-collectivism. In these procedures, the control variables of age, gender, race, year in school, and grade point average were regressed against cooperation in the first step of a hierarchical regression analysis. Next, I entered group size, identifiability, shared responsibility, and the five dimensions of individualism-collectivism to assess the main effects remaining. Then, first-order interactions were entered in a third step to examine the simple moderator effects present after the elimination of control and main effects. The regression analysis concluded with the entry of higher-order interactions that might have additional explanatory power. I assessed the statistical significance of the block of variables entered in each step with an *F*-test of the change in R^2 . Within significant blocks of variables, I appraised the statistical significance of the effect of each variable with a *t*-test.

RESULTS

Results of the moderated regression analysis, shown in Table 3, revealed that the five control variables had a statistically significant joint effect and that three—age, race, and grade point average—had their own statistically significant effects on ratings of cooperation. Whether because of rater biases or actual differences in behavior, participants rated older students, white students, and students with higher grade point averages as more cooperative.

Regression analysis results pertinent to Hypotheses 1–4 indicated that the block of main effects had a statistically significant joint effect on cooperation. Within this block, group size, identifiability, shared responsibility, and one of the five measures of individualism-collectivism, collectivism 1, had statistically significant effects on cooperation after effects of the control variables were accounted for. In support of Hypotheses 1–4, all these effects were in the expected direction: high collectivism, group smallness, high identifiability, and low shared responsibility all contributed to high cooperation.

The regression analysis also verified that the block of first-order interactions had a statistically significant effect. Within this block, collectivism 1 formed statistically significant first-order interactions with group size and with identifiability. In addition, a second measure of individualism-

TABLE 2
Descriptive Statistics and Correlations

Variables	Means	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	21.31	2.27														
2. Race ^a			.06													
3. Gender ^a			-.09	.13**												
4. Year in school ^a			.36**	.00	-.09											
5. Grade point average	2.89	0.39	.01	-.08	.06	-.05										
6. Collectivism 1	3.80	1.01	.01	.02	.05	.07	-.03	.72 ^b								
7. Collectivism 2	3.94	1.07	.03	.06	.30**	-.01	-.03	.50**	.79 ^b							
8. Collectivism 3	4.04	1.25	-.02	.03	-.06	.05	-.14**	.30**	.09	.83 ^b						
9. Collectivism 4	5.57	0.72	.03	.11**	.19**	-.03	-.04	.03	.15**	.05	.80 ^b					
10. Collectivism 5	5.32	1.09	.07	-.02	.12**	.06	.10	.19**	.19**	-.05	.29**	.76 ^b				
11. Group size	4.06	1.43	-.01	-.01	-.01	-.01	-.02	-.05	-.06	-.01	.01	-.06	-.14**			
12. Identifiability	5.51	0.83	.09	.10	.21**	.03	.12**	.10	.14**	.08	.31**	.20**	-.14**	.70 ^b		
13. Shared responsibility	4.92	1.29	-.10	.11	.06	-.08	-.08	.16**	.09	.13**	.14**	.03	-.20**	.39**	.71 ^b	
14. Cooperation	0.00	1.00	.15**	-.15**	.01	-.01	.18**	.05	.00	-.05	.08	.10	-.11	.23**	-.06	.91 ^c

^a Correlations involving this variable are Spearman rank-ordered statistics. All others are Pearson product-moment statistics.

^b Statistic is a coefficient alpha reliability estimate.

^c Statistic is a Spearman-Brown prophecy estimate.

** $p < .01$

TABLE 3
Results of Moderated Regression Analysis: Effects on
Peer-Rated Cooperation

Step	R ²	ΔR ²	ΔF	Variables	β	t
1	.080**			Age	.177	3.59**
				Race	-.155	-3.33**
				Gender	.028	0.60
				Year in school	-.058	-1.17
				Grade point average	.165	3.58**
2	.159	.079	5.08**	Collectivism 1	.111	2.02*
				Collectivism 2	-.079	-1.45
				Collectivism 3	-.053	-1.12
				Collectivism 4	.051	1.03
				Collectivism 5	.008	0.17
				Group size	-.102	-2.25*
				Identifiability	.255	4.86**
				Shared responsibility	-.153	-3.03**
				Collectivism 1 × size	.538	2.07*
				Collectivism 1 × identifiability	-.887	-1.94*
3	.235	.076	2.27**	Collectivism 1 × shared responsibility	-.192	-0.69
				Collectivism 2 × size	-.259	-1.03
				Collectivism 2 × identifiability	1.060	2.35**
				Collectivism 2 × shared responsibility	-.133	-0.44
				Collectivism 3 × size	.581	2.67**
				Collectivism 3 × identifiability	-.365	-0.86
				Collectivism 3 × shared responsibility	.449	1.67
				Collectivism 4 × size	.906	1.88
				Collectivism 4 × identifiability	-.745	-1.34
				Collectivism 4 × shared responsibility	-.372	-0.86
				Collectivism 5 × size	-.290	-1.16
				Collectivism 5 × identifiability	.274	0.59
				Collectivism 5 × shared responsibility	-.044	-0.11
				Size × identifiability	-.503	-1.40
				Size × shared responsibility	-.156	-0.73
				Identifiability × shared responsibility	-.388	-0.98
4	.268	.033	1.14			

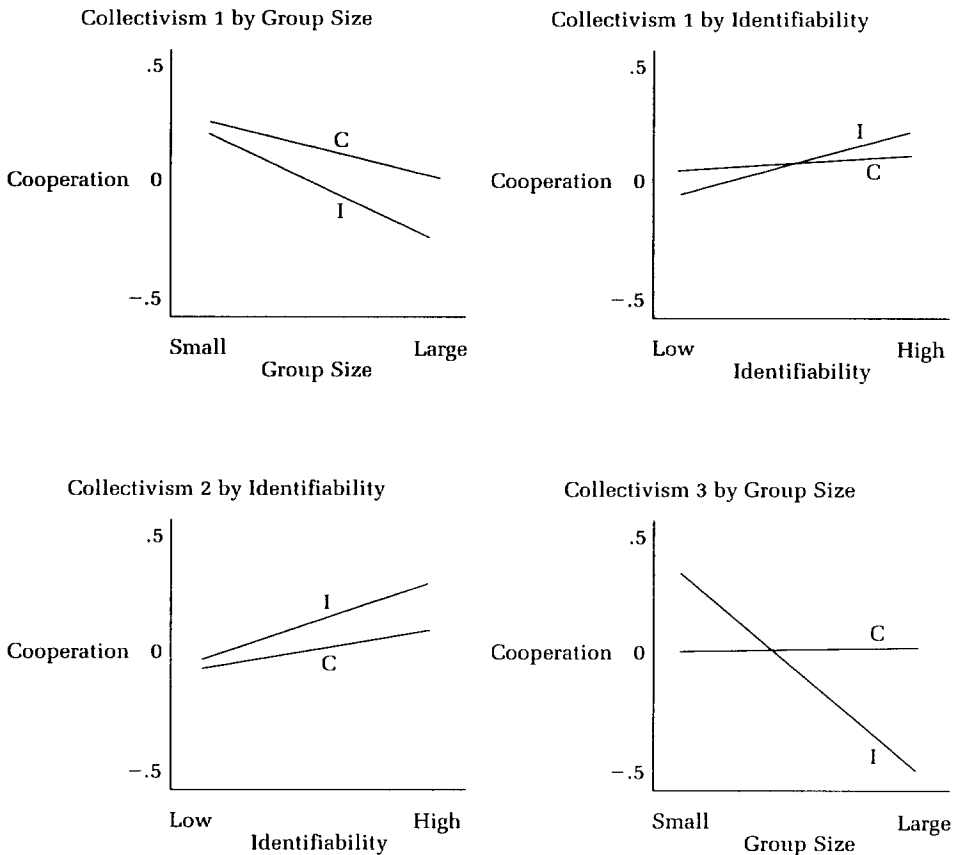
* $p < .05$

** $p < .01$

collectivism, collectivism 2, formed a statistically significant interaction with identifiability, and collectivism 3 interacted with group size to a statistically significant degree. Plots of these interactions, shown in Figure 2, showed that all were consistent with expectations specified in Hypothesis 5: high levels of collectivism attenuated the effects of group size and identifiability on cooperation. However, none of the five measures of individualism-collectivism formed a statistically significant interaction with shared responsibility. Hypothesis 5 thus received only mixed support.

None of the pairwise combinations of group size, identifiability, and shared responsibility produced evidence of statistically significant interaction effects. Tests of higher-order interactions also failed to produce evi-

FIGURE 2
Plots of Statistically Significant First-Order Interactions^a



^a In each figure, the individualist trend is marked "I" and the collectivist trend is marked "C".

dence of statistically significant effects. The reduced model consisting only of statistically significant control variables, main effects, interactions, and statistically nonsignificant main effects appearing in statistically significant interactions, yielded an R^2 of .19 ($F_{13,478} = 7.98, p < .01$).

DISCUSSION

Consistent with the findings of most prior research on free riding and social loafing, the results of this study support the hypotheses that small group size, high identifiability, and low shared responsibility are associated with greater cooperation in groups. This study's findings also indicate that differences in individualism-collectivism have main and moderator effects on cooperation in groups. In particular, the aspect of individualism-collectivism that concerns differences in personal independence and self-

reliance has a direct effect: individualists who feel independent and self-reliant are less apt to engage in cooperative behavior, and collectivists who feel interdependent and reliant on groups are more likely to behave cooperatively. The same aspect of individualism-collectivism also moderates relationships between group size, identifiability, and cooperation in such a way that group size and identifiability have greater effects on the cooperation of individualists than they do on the cooperation of collectivists. A second aspect of individualism-collectivism, differences in the importance attached to competition and personal success, also moderates the identifiability-cooperation relationship, and a third aspect, differences in the value placed on working alone, moderates the relationship between group size and cooperation. In both of these interactions, high collectivism reduces the influence of identifiability and size on cooperation.

In contrast to these findings supporting predictions, the present study failed to show that differences in individualism-collectivism among U.S. college students moderate the relationship between shared responsibility and cooperation. One interaction, between collectivism 3 and shared responsibility, came close to attaining statistical significance ($p < .10$), suggesting that improved measurement or perhaps other methods might produce findings supportive of hypothesized expectations. However, it is also possible that the null results of this study signal the existence of an additional, untapped dimension of individualism-collectivism that has the expected moderator effects. Or the results of this study might accurately reflect the absence of similar effects among Americans in general. Further analysis is required to weigh these possibilities.

Although college students served as the participants in the present study, the use of an ordinary classroom assignment (a graded presentation), a measure of cooperation that was perceived as routine (a customary peer evaluation), and a task that required sustained interdependence (a group project) seem to permit cautious generalization to other settings in which interdependent tasks are performed in groups. Allowed such generalization, the results of this study hold important implications for research on individualism-collectivism and group cooperation. One of these grows out of the results of the factor analyses, which indicate that the three measures by Wagner and Moch (1986), Erez and Earley (1987), and Triandis and colleagues (1988) are neither entirely synonymous nor completely independent. At a minimum, this finding suggests that researchers should exercise caution when attempting to reach cumulative conclusions on the basis of empirical studies that have used different measures of individualism-collectivism. It also provides support for the recommendation that multiple dimensions be measured in future research intended to assess the antecedents or consequences of individualistic-collectivist variation.

A second implication, drawn from the primary results of this study, parallels the observations of Sampson (1977, 1978, 1988), who criticized the individualistic leanings of many American theories of psychology and group

behavior. Central to Sampson's criticism has been the assertion that current social theories developed in the United States only partially represent the full range of human variability. Consistent with this assertion, the present study indicates that conceptualizations of cooperation that are based on free rider or social loafing models or on similar treatments of the social psychology of group behavior are limited in their applicability to collectivists.

This finding suggests the development of a more balanced stream of research on cooperation, perhaps one growing out of the realization that free riding and social loafing in the purest form represent individualism pursued to an extreme. What would a model of group cooperation look like if it also incorporated a description of collectivism pursued to an extreme? Perhaps it would include the possibility that overzealous collectivist concerns about group well-being could stimulate overcontribution to group endeavors, prematurely exhausting the resources of extremist members. If widespread among the membership of a group, such overcontribution and exhaustion might undermine the group's ability to look after its members, ultimately threatening the group's performance and continued survival. In such situations, the cooperative response might not involve making personal contributions to group endeavors but might instead consist of withholding some minimal reserve of effort in order to conserve one's resources and ensure long-term group viability.

Redirected research on cooperation might also deal with the paradox that collectivists whose cooperation outpaces the contributions of others in their groups are distinguishing themselves from their colleagues and becoming less collectivistic as a result. Paraphrasing a collectivist adage, being "the nail that sticks out," even for reasons intended to benefit group well-being, carries the liability of needing to be "hammered back in" to preserve the collectivist sense of self and group. Analyzing how groups of collectivists deal with this problem might suggest varieties of surveillance, control, and sense-making that influence collectivist cooperation in much the same way that factors such as group size, identifiability, and shared responsibility shape individualist behaviors.

In conclusion, this study substantiates the idea that variation in individualism-collectivism can have effects, within a single societal culture, on cooperation in groups, and that these effects can extend and modify the influence of factors often analyzed in research on free riding and social loafing. Do collectivist self-definitions induce a significant number of working Americans to cooperate with one another? Might work place collectivism thus supplement or even supplant many of the management procedures presently used to encourage cooperation in U.S. organizations? Do problems with overcontribution, exhaustion, and individuation, heretofore ignored because of the individualistic leanings of much existing research, undermine effective cooperation among Americans who hold collectivist self-definitions at work? The present study suggests that such questions merit serious attention in future research on cooperation in groups.

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